

## ON THE TYPE OF THE GENUS COCCUS, L.

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The first attempt to separate the species given under *Coccus* in the 10th edition of the *Systema Naturæ* of Linneus, was made by Geoffroy, in his *Histoire Abregée des Insectes*, Vol. I. (1762), where he placed a part of them under *Chermes* and left *adonidum* and *phalaridis*, with his new species *ulmi*, under *Coccus*. Of these species only *phalaridis* was given under the genus *Coccus* by Linneus in his 10th edition, and is therefore the only species that could be regarded as the type of *Coccus* so far as Geoffroy is concerned.

In 1802, Latreille, in Vol. III., p. 267, of his *Hist. Nat. Crust. Ins.*, established *hesperidum* as the type of the genus *Coccus*. I have not been able to find that any of the writers between the appearance of the work of Geoffroy and that of Latreille published anything that would fix the type of *Coccus*. Leach in 1815 and Samouelle in 1819 adopted *cacti* as the type, but the statement made by Leach that it "inhabits fruit trees" makes it quite certain that he had under consideration neither *cacti*, L., nor the cochineal insect. Samouelle merely copies Leach. Curtis, in his *British Entomology* (1838), gives *cacti*, L., as the type, but none of these three authors could affect the question, as the type had already been established by Latreille, if not by Geoffroy, as shown above.

The *phalaridis* of Linneus was so obscure an insect that the author himself could not determine whether it was a *Coccus*, an *Aphis* or a *Chermes*. Fonscolombe, in describing his *Coccus radicum graminis* (*Ann. Soc. Ent. Fr.* III., 212, 1834), gave the synonymy as follows: *Phalaridis* (?), Linn., Fab., non *C. phalaridis*, Enc. Meth. nec Geoffr. Prof. Cockerell has suggested the idea that the *phalaridis* of Geoffroy was possibly not the same species as the Linnean insect, which is precisely the same idea that Fonscolombe had, as shown by his synonymy. Since it is probably impossible to prove that Geoffroy had any of the Linnean species of the 10th edition in his restricted genus, the only safe ground will be to adopt the type established by Latreille in 1802, at least till further light is obtained on the identity of *phalaridis*, L., which at present is unknown.

If, therefore, we adopt *hesperidum* as the type of *Coccus*, the genera *Calymnatus* and *Calypticus* of Costa and *Lecanium* of Burmeister will fall

as synonyms of *Coccus*, and a new subfamily name will have to be substituted for *Lecaniinae* and also for the subfamily now called *Coccinae*.

The species *cacti*, L., as has been shown by Prof. Cockerell, is a *Monophlebus* and must be known by the name of *Monophlebus cacti*, L. This insect, so far as can be learned from the writings of those who are known to have had this species before them for study, does not possess colouring matter. When Fabricius and others simply copy the description of Linneus without changing it in any way we must consider it as pertaining to the Linnean species only, but when they add to that description the word "tinctorium," as Fabricius does in some of his later writings, we must conclude that he has confounded the cochineal insect with the Linnean species which has the following synonymy:

*Coccus cacti*, Linn., Syst. Nat., Ed. X., Vol. I., p. 457 (1758).

*Coccus cacti*, Linn., Syst. Nat., Ed. XII., Vol. I., p. 742 (1766).

*Coccus cacti*, Fab., Syst. Ent., p. 744 (1775).

*Coccus cacti*, DeGeer, Ins. Vol. 6, p. 447 (1776).

*Coccus cacti*, Fab., Spec. Ins., Vol. II., p. 395 (1781) in part.

*Coccus cacti*, Gmel., Syst. Nat., Ed. XIII., Vol. I., part IV., p. 2220 (1788-93) in part.

*Coccus cacti*, Fab., Ent. Syst., Vol. IV., p. 227 (1794) in part.

*Coccus cacti*, Fab., Syst. Rhyng., p. 311 (1803) in part.

*Monophlebus cacti*, Ckll., Science, n. ser., Vol. XV., p. 718 (1902).

The cochineal insect, so long confounded with *cacti*, L., was called by the specific name of *cacti* through a misapprehension, from the time of Fabricius till Costa, in his *Fauna del Regno di Napoli*, Emitteri, described the species under the name of *Dactylopius coccus*, in such a manner that there can be no doubt that he was dealing with the cochineal insect. In 1833 Brandt described it very fully, with excellent illustrations, under the name of *Coccus cacti*, and, while he supposed he had the Linnean species, his description and illustrations apply only to the cochineal insect. The synonymy of this insect is too extensive to be given here, but will appear in my Catalogue of the Coccidæ soon to be published.

The leading facts in this paper were prepared at my request by my husband, Prof. C. H. Fernald, in reply to questions from Prof. Cockerell, who requested him to publish the results of his investigations on the subject, but as Mr. Fernald does not wish to publish on the Coccidæ, he has turned the matter over to me to prepare for publication.